


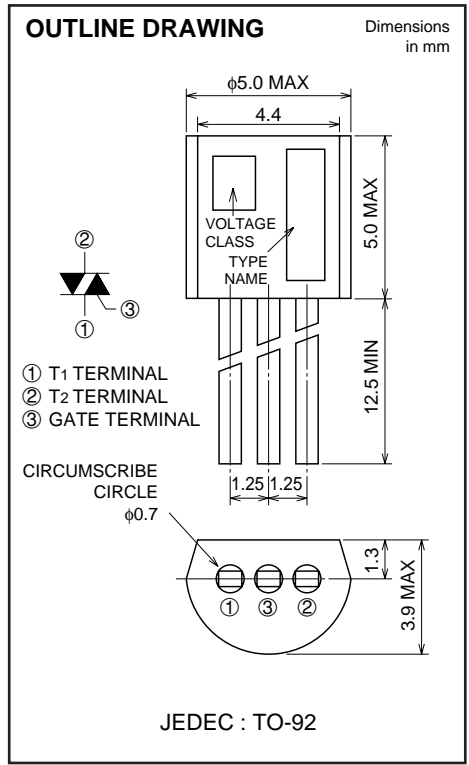
CR04AM

LOW POWER USE
GLASS PASSIVATION TYPE

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- $I_T (AV)$ **0.4A**
- V_{DRM} **400V/600V**
- I_{GT} **100 μ A**



APPLICATION

Ignitor, solid state relay, strobe flasher, circuit breaker, other general purpose control applications

MAXIMUM RATINGS

| Symbol | Parameter | Voltage class | | Unit |
|---------|--------------------------------------|---------------|-----|------|
| | | 8 | 12 | |
| VRRM | Repetitive peak reverse voltage | 400 | 600 | V |
| VRSM | Non-repetitive peak reverse voltage | 500 | 720 | V |
| VR (DC) | DC reverse voltage | 320 | 480 | V |
| VDRM | Repetitive peak off-state voltage *1 | 400 | 600 | V |
| VD (DC) | DC off-state voltage *1 | 320 | 480 | V |

| Symbol | Parameter | Conditions | Ratings | Unit |
|-------------|--------------------------------|---|------------|------------------|
| $I_T (RMS)$ | RMS on-state current | | 0.63 | A |
| $I_T (AV)$ | Average on-state current | Commercial frequency, sine half wave, 180° conduction, $T_a=54^\circ\text{C}$ | 0.4 | A |
| I_{TSM} | Surge on-state current | 60Hz sine half wave 1 full cycle, peak value, non-repetitive | 10 | A |
| I_t^2 | I_t^2 for fusing | Value corresponding to 1 cycle of half wave 60Hz, surge on-state current | 0.4 | A ² s |
| PGM | Peak gate power dissipation | | 0.5 | W |
| PG (AV) | Average gate power dissipation | | 0.1 | W |
| VFGM | Peak gate forward voltage | | 6 | V |
| VRGM | Peak gate reverse voltage | | 6 | V |
| IFGM | Peak gate forward current | | 0.3 | A |
| T_j | Junction temperature | | -40 ~ +125 | °C |
| T_{stg} | Storage temperature | | -40 ~ +125 | °C |
| — | Weight | Typical value | 0.23 | g |

*1. With Gate-to-cathode resistance $R_{GK}=1k\Omega$

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ELECTRICAL CHARACTERISTICS

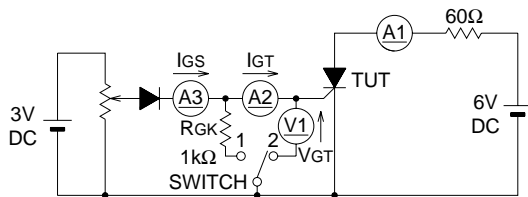
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|----------------------|-----------------------------------|---|--------|------|-------|--------------------|
| | | | Min. | Typ. | Max. | |
| IRRM | Repetitive peak reverse current | $T_j=125^\circ\text{C}$, V_{RRM} applied | — | — | 0.5 | mA |
| IDRM | Repetitive peak off-state current | $T_j=125^\circ\text{C}$, V_{DRM} applied, $R_{GK}=1\text{k}\Omega$ | — | — | 0.5 | mA |
| V _{TM} | On-state voltage | $T_a=25^\circ\text{C}$, $I_{TM}=1.2\text{A}$, instantaneous value | — | — | 1.2 | V |
| V _{GT} | Gate trigger voltage | $T_a=25^\circ\text{C}$, $V_D=6\text{V}$, $I_T=0.1\text{A}$ *3 | — | — | 0.8 | V |
| V _{GD} | Gate non-trigger voltage | $T_j=125^\circ\text{C}$, $V_D=1/2V_{DRM}$, $R_{GK}=1\text{k}\Omega$ | 0.2 | — | — | V |
| I _{GT} | Gate trigger current | $T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $I_T=0.1\text{A}$ *3 | 1 | — | 100*2 | μA |
| I _H | Holding current | $T_j=25^\circ\text{C}$, $V_D=12\text{V}$, $R_{GK}=1\text{k}\Omega$ | — | 1.5 | 3 | mA |
| R _{th(j-a)} | Thermal resistance | Junction to ambient | — | — | 150 | $^\circ\text{C/W}$ |

*2. If special values of I_{GT} are required, choose at least two items from those listed in the table below. (Example: AB, BC)

| Item | A | B | C |
|-----------------------------------|--------|---------|----------|
| I _{GT} (μA) | 1 ~ 30 | 20 ~ 50 | 40 ~ 100 |

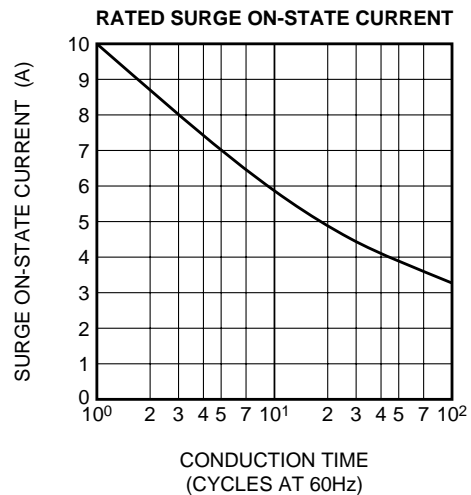
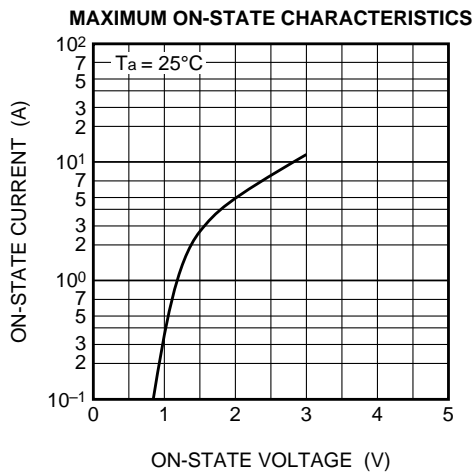
The above values do not include the current flowing through the 1k Ω resistance between the gate and cathode.

*3. I_{GT}, V_{GT} measurement circuit.



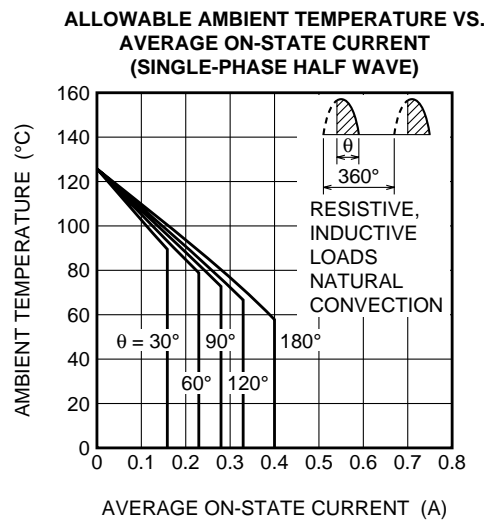
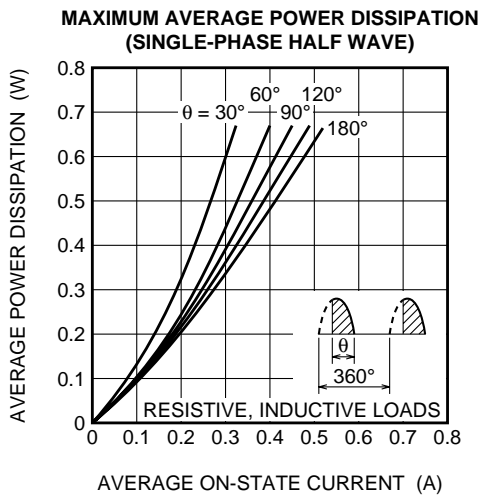
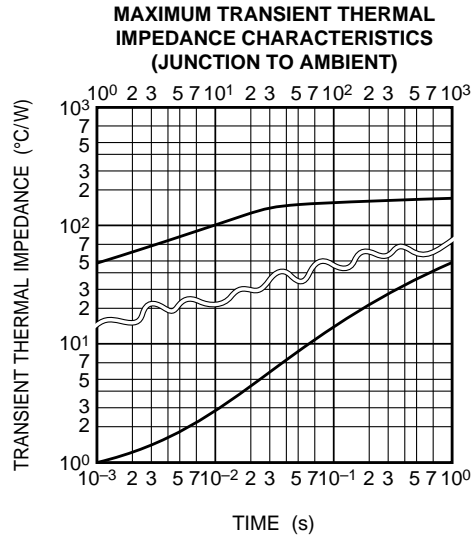
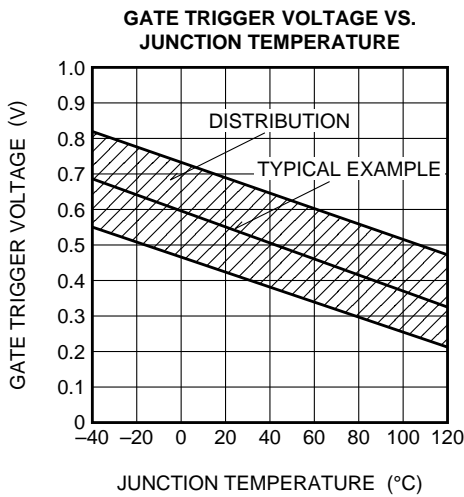
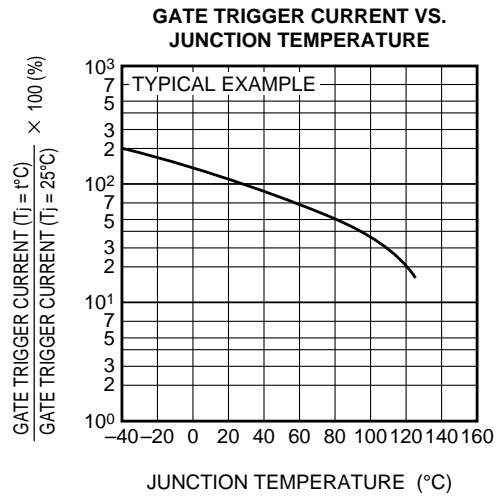
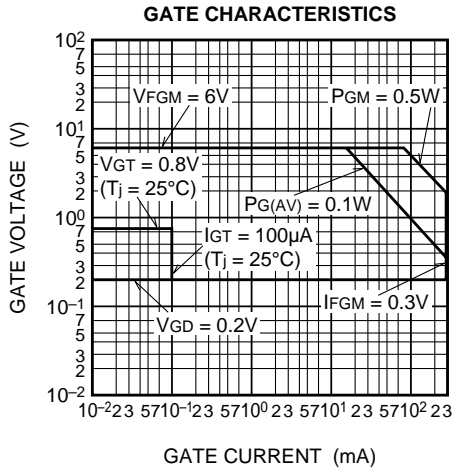
SWITCH 1 : I_{GT} measurement
SWITCH 2 : V_{GT} measurement
(Inner resistance of voltage meter is about 1k Ω)

PERFORMANCE CURVES



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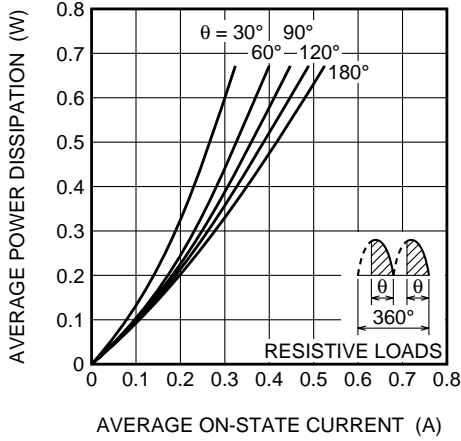
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GLASS PASSIVATION TYPE



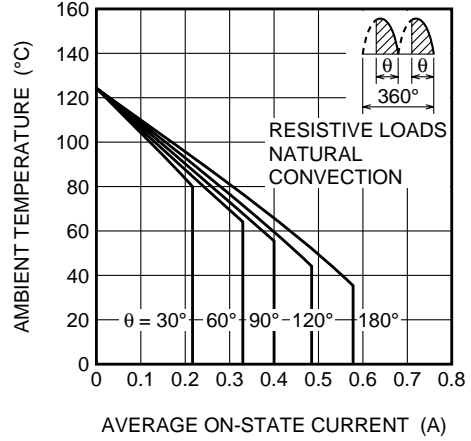
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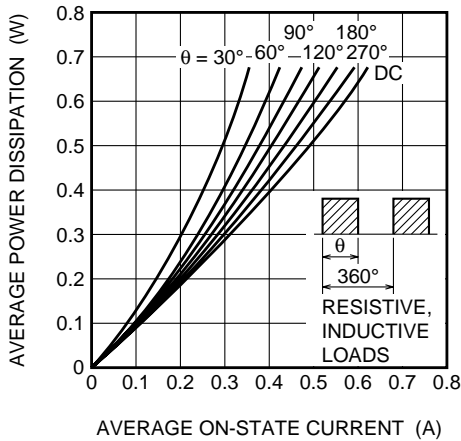
**MAXIMUM AVERAGE POWER DISSIPATION
(SINGLE-PHASE FULL WAVE)**



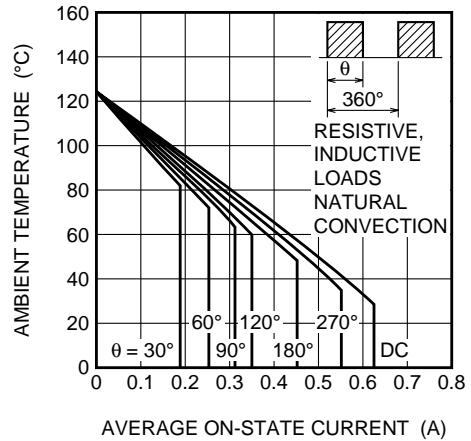
**ALLOWABLE AMBIENT TEMPERATURE VS.
AVERAGE ON-STATE CURRENT
(SINGLE-PHASE FULL WAVE)**



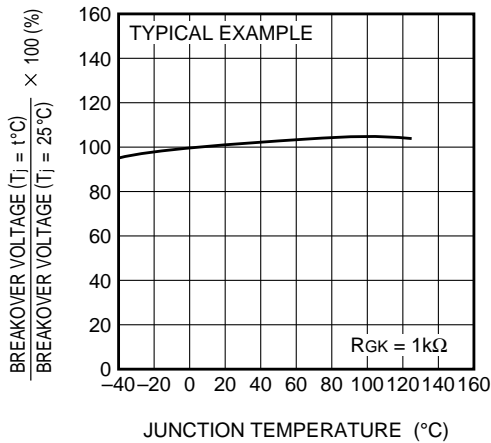
**MAXIMUM AVERAGE POWER DISSIPATION
(RECTANGULAR WAVE)**



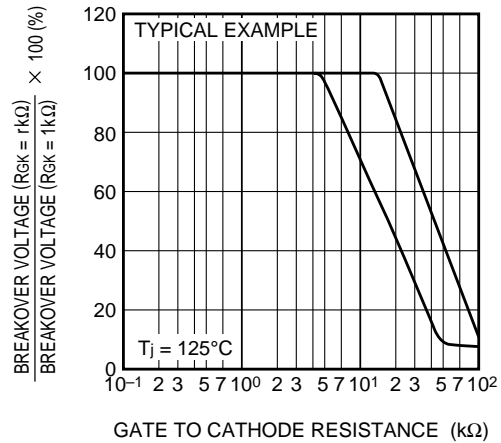
**ALLOWABLE AMBIENT TEMPERATURE VS.
AVERAGE ON-STATE CURRENT
(RECTANGULAR WAVE)**



**BREAKOVER VOLTAGE VS.
JUNCTION TEMPERATURE**

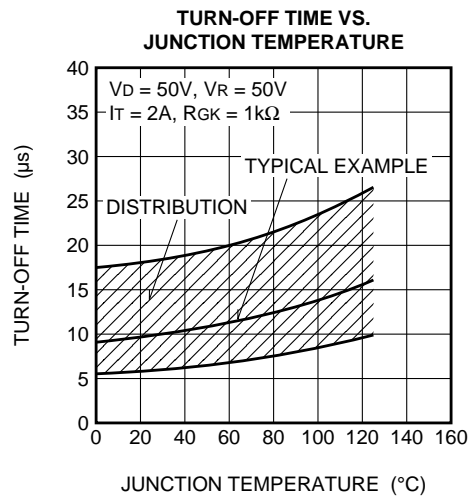
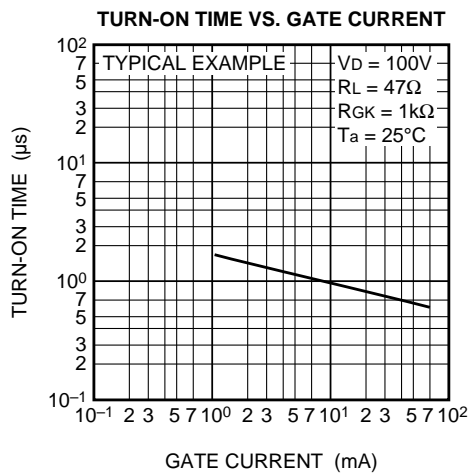
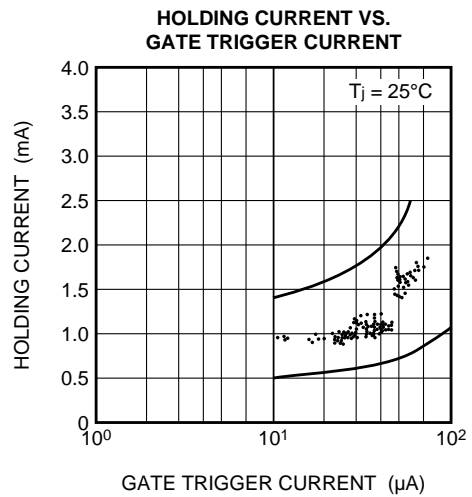
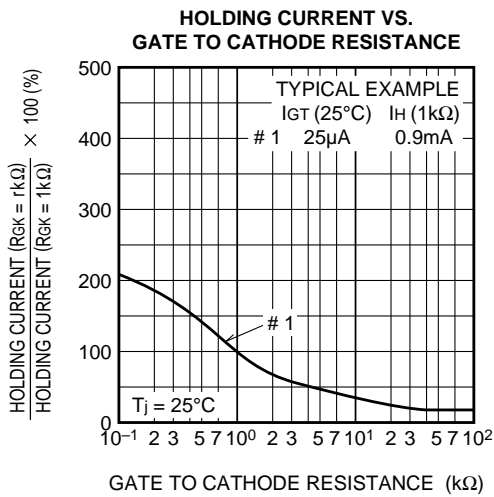
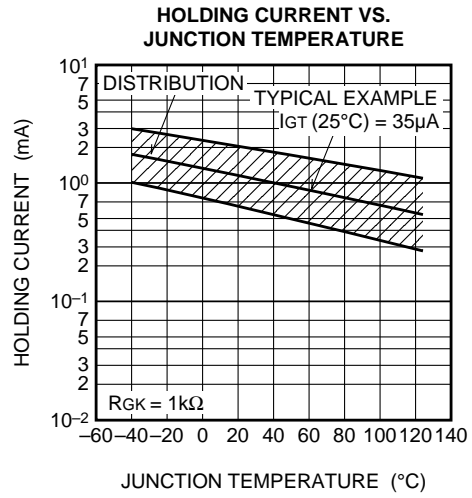
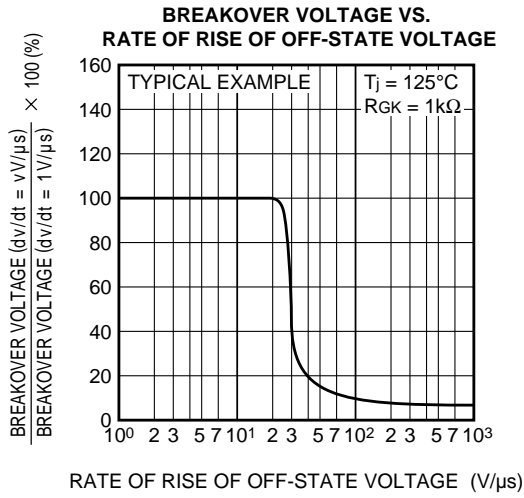


**BREAKOVER VOLTAGE VS.
GATE TO CATHODE RESISTANCE**



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